

Server PC Model 200

- **Powerful departmental server for PCs and terminals**
- **Intel 80386 microprocessor at 20 MHz**
- **IBM PC AT compatible**
- **Supports UNIX System V Release 3 and DOS operating systems**
- **Supports integrated UNIX/DOS environments**
- **Supports RFS and PC Exchange networking software**
- **64 KB write-back cache**
- **Optional Intel 80387 and Weitek 1167 floating point processors**
- **Parity memory from 4 to 64 MB**
- **Up to 975 MB internal SCSI disk storage capacity**
- **Industry-standard format, 1/4-inch cartridge (QIC) tape**
- **Up to two AT-compatible floppy disk drives**
- **Four 32-bit high performance expansion slots**
- **Eight AT- and PC-compatible expansion slots**

The Server PC™ Model 200 (SPC/200) is a member of the Convergent™ Server PC product family of high-performance departmental servers. The SPC/200 uses the full capabilities of the Intel® 80386 microprocessor running at 20 MHz, and integrates the functionality of a PC server within a classical UNIX® multiuser system.

The SPC/200 supports CTIX/386™, Convergent's version of AT&T's UNIX System V Release 3. The SPC/200 also supports DOS directly or in a combined UNIX/DOS integrated environment. This ability to simultaneously execute multiple operating systems gives the user flexibility when selecting applications. The SPC/200 provides up to 43 serial connections and can support up to 32 typical UNIX users.

As a departmental server, the SPC/200 uses the optional PC Exchange™ software environment to provide capabilities such as file sharing, print services, and electronic mail to workgroups using PCs. Convergent's PC Exchange, in conjunction with network media options such as Ethernet, allows the SPC/200 to support up to 64 PCs, depending on the application. The SPC/200 also has the processing power to support sophisticated office automation and data processing tasks not available to single-user PCs.



SPC/200 HARDWARE OVERVIEW

Each SPC/200 contains the following subsystems:

- Processor subsystem
- Memory subsystem
- Mass storage devices
- Input/output (I/O) subsystem
- Expansion bus
- Option boards
- Software

Processor Subsystem

The SPC/200 processor subsystem contains an Intel 80386 microprocessor operating at 20 MHz. The Intel 80386 supports full 32-bit data paths and includes an on-chip memory management unit (MMU) that supports demand paging with 4 GB of virtual address space.

By using an integral 64 KB write-back cache, the SPC/200 attains maximum processor performance. This cache design provides zero-wait-state operation for most memory read and write accesses.

The 80386 processor in the SPC/200 may be enhanced by either the Intel 80387 or the Weitek 1167 floating point units (FPUs), which are field-installable options. The 80387 FPU operates at 20 MHz and supports basic arithmetic and enhanced trigonometric functions using the IEEE 754 floating-point format. The 80387 is compatible with the 80287 FPU to ensure that 80287 AT-based floating point applications can be executed by the SPC/200.

The Weitek 1167 is an ultra-high-performance FPU operating at 20 MHz and supporting basic arithmetic functions using the IEEE 754 floating-point format. Operating at over four million whetstones, the Weitek 1167 is ideal for demanding floating-point applications.

Each SPC/200 includes a 64 KB ROM containing an enhanced, AT-compatible Basic I/O System (BIOS) for DOS-based applications. The BIOS includes diagnostic tests and supports the additional demands of the CTIX/386 operating environment.

Memory

The SPC/200 supports from 4 to 64 MB of memory by using up to four expansion boards. Memory expansion uses byte-parity protected RAM.

The Server PC uses single in-line memory modules (SIMM) technology for simple field installation and upgrades. Expansion boards are available with either 4 or 16 MB capacities. A 4 MB memory board consists of four memory packs of 1 MB, and a 16 MB memory board consists of four memory packs of 4 MB. Memory exceeding 16 MB or two memory boards is accessed directly by the processor, bypassing the cache. This additional memory (up to 48 MB) is used by CTIX/386 for buffer memory and RAM disk.

Mass Storage Subsystem

The SPC/200 supports a maximum of two floppy drives and five SCSI peripherals in the basic unit. The innovative design accommodates both full-height and half-height peripherals, with sufficient space for four full-height drives. External SCSI devices can be attached to the standard SCSI bus (single-ended alternative) via an industry-standard 50-pin connector.

The integral SCSI bus of the SPC/200 supports asynchronous data rates of 2.5 MB/sec and synchronous data rates of 3.3 MB/sec. The SCSI controller includes address mapping facilities that allow I/O operations to be performed directly on buffers scattered throughout physical memory.

The SCSI interface can control up to seven device identifications (IDs) with support for additional devices using SCSI Logical Unit Numbers (LUNs).

SPC/200 Mass Storage Peripherals

Device Type	Formatted Capacity (MB)	Avg Seek Time	Form Factor (Height)
Floppy (QHB-150)	1.2	91 msec	Half
Tape (QHB-140)	60	90 ips	Half
Tape (QHB-160)	150	90 ips	Half
Disk (QHC-110)	80	28 msec	Half
Disk (QHC-120)	145	23 msec	Full
Disk (QHC-130)	325	18 msec	Full

I/O Subsystem

The SPC/200 basic unit includes a full set of AT-compatible I/O ports, enhanced serial ports for host communications, and a power-fail controller port.

The SPC/200 AT-compatible I/O ports include an asynchronous communications (ASCOM) port, an AT-compatible bidirectional parallel printer port, three timers, a speaker, a realtime clock with user-replaceable battery backup, nonvolatile RAM for configuration setup/control, and a keyboard interface with a five-position DIN connector for use with AT or PC-enhanced keyboards.

The I/O subsystem includes two enhanced 25-pin RS-232-C interfaces. These enhanced interfaces can handle asynchronous and synchronous communications at speeds up to 19,200 bits/sec.

For protection against data loss caused by power failures, each SPC/200 includes an interface for attaching to an intelligent uninterruptible power supply (UPS). The interface, in conjunction with CTIX/386, ensures an orderly shutdown in the event of a power loss.

Expansion Slots

The SPC/200 has a total of ten expansion slots in the basic unit: four high-performance slots and eight PC-compatible expansion slots. Two of the expansion slots are mechanically shared between the two buses.

The high-performance 32-bit bus operates at 16 MB/sec and is used for memory expansion or peripheral cards needing maximum performance.

The PC bus consists of three PC slots (8 bit) and five AT-compatible slots (16 bit). These slots are designed to accommodate any standard PC or AT option cards, including graphics controllers, networking cards, and communication cards.

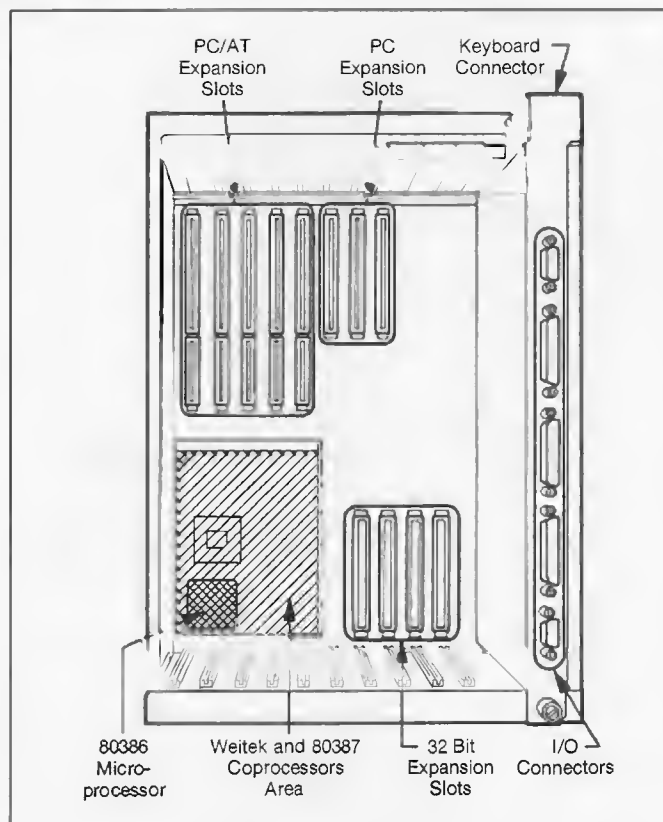
Each slot is capable of carrying extra high (up to 6 inch) cards, providing an additional 25 percent board space for advanced applications. In addition, the SPC/200 supports an enhanced connector scheme that allows connector location on the 13-inch edge of the expansion card.

Option Boards

The *Serial Communications Processor* (QCP-100) option board provides eight RS-232-C ports. All eight ports can be configured for asynchronous communications to standard ASCII terminals and serial printers or for synchronous communications to host mainframes or data-switching networks at speeds up to 19,200 bits/sec. One of these ports has direct memory access (DMA) capabilities. The QCP-100 incorporates a 10-MHz Intel 80186 CPU with 384 KB of memory; 128 KB is dual-ported and shared with the host CPU.

The CTIX/386 operating system makes use of the QCP-100 local processing to handle all low-level serial I/O processing. The SPC/200 can accommodate a total of five QCP-100s to provide a maximum system configuration of 43 RS-232-C ports, including the two enhanced serial interfaces and the ASCOM port of the basic configuration.

The *Ethernet Controller* board (QNE-101) is a high-performance IEEE 802.3-compatible Ethernet adapter. The QNE-101 supports thick Ethernet cabling and also contains an on-board transceiver for use with 'Thin Net' Ethernet. The controller contains 8 KB of dual-ported RAM that allows multipacket buffering and optimum throughput performance.



The SPC/200 expansion slots

AT Compatibility

With the SPC/200, Convergent strives to achieve full compatibility with the IBM® PC AT® and also achieve significant gains in performance, configurability, and suitability for UNIX. In most cases, there is no detectable functional difference between third-party products (hardware and/or software) used in an IBM PC AT and the SPC/200. Customers should check to ensure that the level of compatibility meets their needs. Reports that detail those third-party products, which have been evaluated for compatibility, are available upon request.

SERVICEABILITY

The SPC/200 ROM BIOS contains code that performs confidence tests on the system hardware before bootstrap. More extensive diagnostics are shipped on a bootable diskette with every system. The inherently modular system design allows for easy maintenance.

Failures can be detected and located to the level of a field replaceable unit by the diagnostics in conjunction with Convergent's extensive documentation.

OPERATING SYSTEM SUPPORT

CTIX/386 is based on AT&T System V Release 3 and maintains a high level of source compatibility with CTIX™, the operating system used with the S/Series™ family of Convergent systems.

CTIX/386 conforms strictly to the System V Interface Definition (SVID) and Application Binary Interface (ABI) 386 standards, which assure users of compatibility with a wide range of third-party developed applications.

CTIX/386 features a number of enhancements for performance, reliability, and ease of use:

- Dynamically loadable drivers
- Support for tasks requiring virtual 8086 mode
- High-performance hardened file system with tunable options, direct I/O, and allocation of contiguous areas on disk
- Process enhancements, including pre-emptive scheduling and asynchronous I/O
- Support of RAM-disk
- Full suite of utilities for C language program development

These enhancements contribute to the SPC/200's performance in UNIX environments, UNIX/DOS environments, and as a departmental server for networks of PCs.

SOFTWARE OPTIONS

Convergent offers many software products for use with the SPC/200 that are described in their respective datasheets.

MS-DOS

The SPC/200 is AT compatible and can, as such, execute standard versions of PC-DOS® and MS-DOS® intended for AT-compatible systems.

Merge 386™

The Merge 386 software environment allows DOS and UNIX applications to run concurrently on the SPC/200. Users connected to the SPC/200 via terminals can execute DOS and UNIX programs, which access the same integrated file system.

TCP/IP

CTIX/386 streams-based TCP/IP provides a media-independent transport mechanism, fully compatible with Department of Defense TCP/IP standards. CTIX/386 TCP/IP supports multiple Ethernet links, X.25 Public Data Network, and Serial Line Internet Protocol (SLIP) for RS-232-C connectivity.

PC Exchange

PC Exchange is a software environment that allows PC systems to interconnect with the SPC/200 across a variety of industry-standard network media. PC Exchange provides facilities for sharing files and printers, network-wide mail services, communications gateways, and NETBIOS services. Asynchronous RS-232-C based networking (both direct-connect and dial-in) and Ethernet connections are supported.

Remote File Sharing

Remote file sharing (RFS) allows computers in a network to transparently share files, data, and peripherals. In addition, RFS preserves UNIX file system semantics across the network, including file and record locking, and maintains compatibility of the system call interface with previous releases. Therefore, RFS is the ideal mechanism to tie together networks of computers running System V Release 3 UNIX. Existing applications do not need to be recompiled or altered.

Data Management Facilities

- UNIFY®/E relational DBMS

Fourth Generation Language

- ACCELL™/E

Communications Services

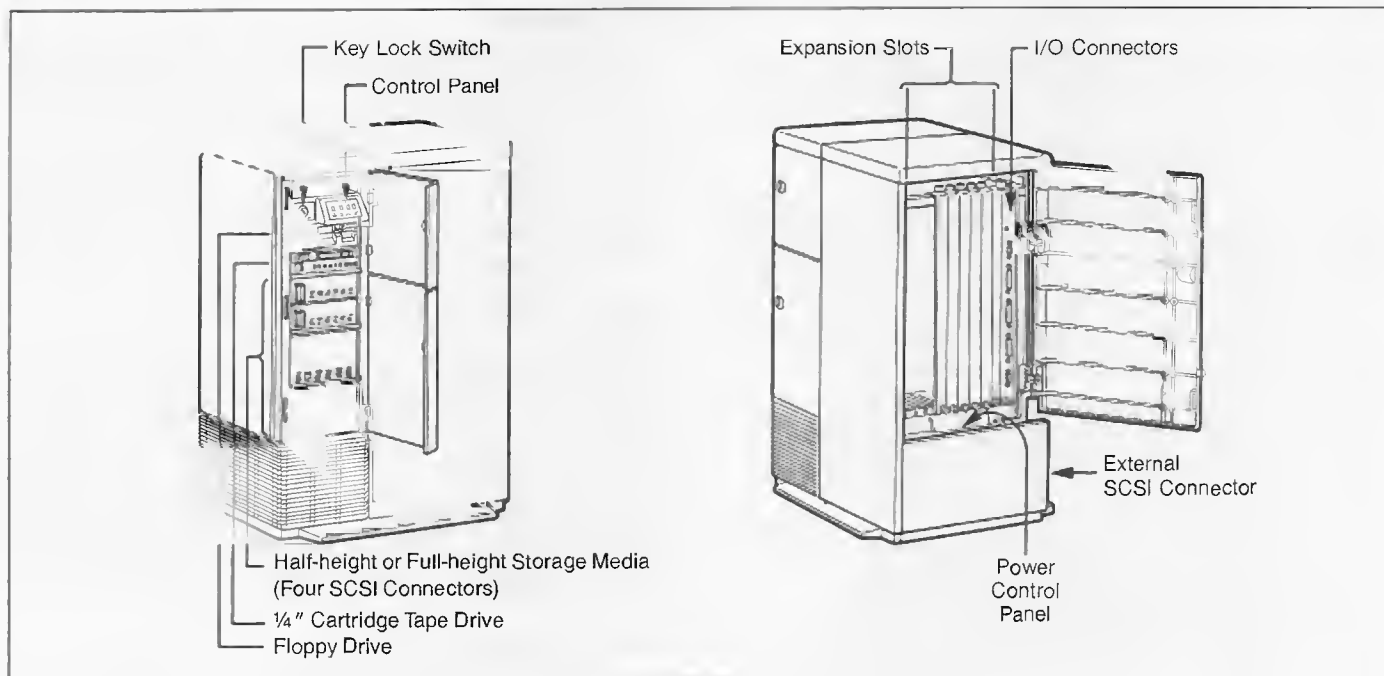
- SNA Network Gateway
- SNA 3270
- SNA RJE
- BSC 3270
- BSC 2780/3780
- X.25 Network Gateway

Office Automation Software

- Convergent's WorkGroup Solutions™ WGS/OFFICE™ includes:
 - WGS/DESKTOP™
 - WGS/WordProcessor™
 - WGS/SpreadSheet™
 - WGS/Mail™
 - WGS/Calendar™
 - WGS/WORD ERA™
- Multiplex™ (provides networked PCs with an interface to mainframe databases)

Third-Party Software

Convergent works closely with software developers to ensure that an extensive set of applications in the CTIX/386 and MS-DOS environment is available to users of the SPC/200. See the current *Independent Software Catalog for CTIX/386 Compatible Software* for more information.



SPC/200 components

SPECIFICATIONS

Processor

Intel 80386 at 20 MHz
 64 KB write-back cache
 Intel 80387 or Weitek 1167 at 20 MHz (optional)

Memory Capacity

Total (parity-checked): 4 to 64 MB
 Cached: 4 to 16 MB

ASCOM Port

Asynchronous, PC AT compatible (9 pin)
 Internal Clock: 110 bps to 9600 bps

Enhanced Communications Ports

Asynchronous or synchronous (25 pin)
 Internal clock: 110 bps to 19.2 kbps
 External clock: 110 bps to 19.2 kbps

Parallel I/O Port (Printer Interface)

PC AT compatible (25 pin)
 1200 lines/min

Mass Storage Interface: SCSI

Conforms to ANSI X3.131 (1986) single-ended alternative (SCSI 4.4.1) with Common Command Set revision 4B as defined by ANSI X3T9.2 (June 23, 1986)

Async data transfer: Up to 2.5 MB/sec
 Sync data transfer: Up to 3.3 MB/sec
 External connection: AMPMODU shielded (50 pin)

Mass Storage Interface: Floppy

Interface: SA402 (floppy)
 Controller: PC AT compatible

ELECTRICAL

115V: 95 to 125 Vrms
 8A at 47 to 63 Hz
 230V: 190 to 250 Vrms
 5A at 47 to 63 Hz
 Maximum DC power: 472W

PHYSICAL

Height: 26.5 in. (67.4 cm)
 Width: 18 in. (45.7 cm)
 Depth: 12 in. (30.5 cm)
 Weight:
 No peripherals: 57 lb (26 kg)
 Fully loaded: 100 lb (45 kg)
 Shipping: 120 lb (54 kg)

REGULATORY

Safety

Certification has been obtained for the following:
 UL 478, fifth edition
 CSA C22.2, No. 220-M1986 (Office Equipment)
 TUV/VDE 0806 (Office Equipment)

Emissions

Meets, exceeds, or has been certified for compliance to the following:
 FCC Part 15, Subpart J, Class A
 VDE 0871, Class A

ENVIRONMENTAL

ESD

5,000V:	No observable effect
15,000V:	No operator-perceived errors
25,000V:	No permanent damage

Thermal Output (Max Configuration)

Operating:	1950 BTU/hr
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Ambient Temperature

Operating:	10°C to 40°C
Non-operating:	-40°C to 60°C

Relative Humidity

Operating:	20% to 80%, noncondensing
Non-operating:	
Unpacked:	10% to 80%, noncondensing
Packaged:	5% to 95%, noncondensing

Altitude

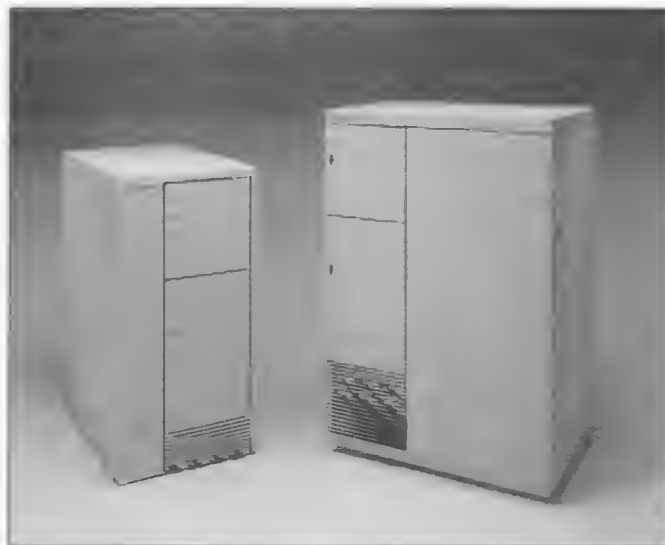
Operating:	10,000 ft ASL
Non-operating:	30,000 ft ASL

Shock

Operating:	2 g, 11 msec
Non-operating:	10 g, 11 msec

Vibration

Operating:	0.2 g, 5 to 250 MHz
Non-operating:	0.5 g, 5 to 250 MHz



Acoustic Noise Level

54 dB(A) typical

Transportation

Packaging and shipping containers and procedures comply with the current NSTA preship test procedures. Shipping container: 37 in. (h) x 24 in. (l) x 25 in. (w)

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